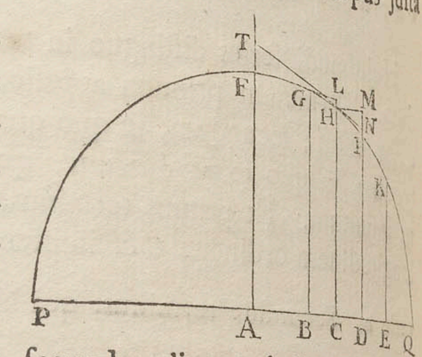
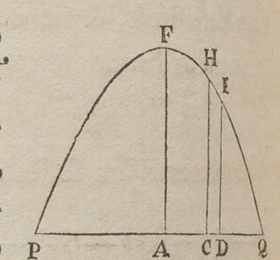
$\frac{AC}{CH}$, id eſt, ut tangentis longitudo illa $HT$, quæ ad ſemidiametrum $AF$ ipſi $PQ$ normaliter inſiſtentem terminatur: & reſiſtentia erit ad gravitatem ut $3a$ ad $2n$, id eſt, ut $3AC$ ad circuli diametrum $PQ$: velocitas autem erit ut $\sqrt{CH}$. Quare ſi corpus juſta cum velocitate ſecundum lineam ipſi $PQ$ parallelam exeat de loco $F$, & medii denſitas in ſingulis locis $H$ ſit ut longitudo tangentis $HT$, & reſiſtentia etiam in loco aliquo $H$ ſit ad vim gravitatis ut $3AC$ ad $PQ$, corpus illud deſcribet circuli quadrantem $FHQ$. Q. E. I.




At ſi corpus idem de loco $P$, ſecundum lineam ipſi $PQ$ perpendicularem egrederetur, & in arcu ſemicirculi $PFQ$ moveri inciperet, ſumenda eſſet $AC$ ſeu $a$ ad contrarias partes centri $A$, & propterea ſignum ejus mutandum eſſet & ſcribendum $-a$ pro $+a$. Quo pacto prodiret medii denſitas ut $-\frac{a}{e}$. Negativam autem denſitatem, hoc eſt, quæ motus corporum accelerat, natura non admittit: & propterea naturaliter fieri non poteſt, ut corpus aſcendendo a $P$ deſcribat circuli quadrantem $PF$. Ad hunc effectum deberet corpus a medio impellente accelerari, non a reſiſtente impediri.

*Exempl.* 2. Sit linea $PFQ$ parabola, axem habens $AF$ horizonti $PQ$ perpendicularem, & requiratur medii denſitas, quæ faciat ut projectile in ipſa moveatur.



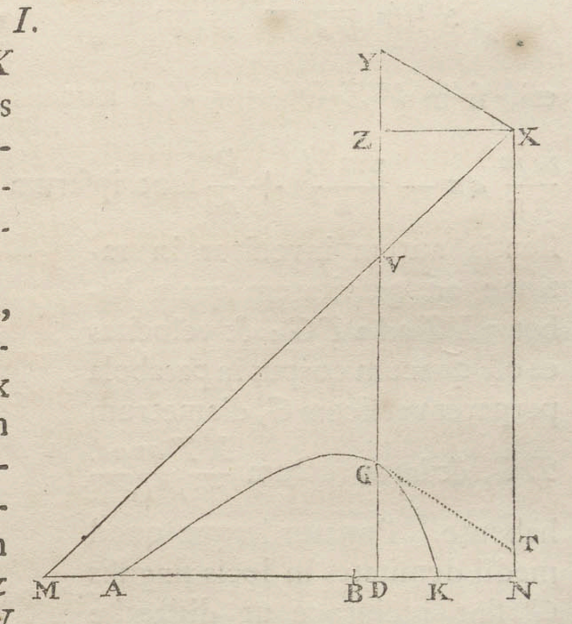

Ex natura parabolæ, rectangulum $PDQ$ æquale eſt rectangulo ſub ordinata $DI$ & recta aliqua data: hoc eſt, ſi dicantur recta illa $b$; $PC$, $a$; $PQ$, $c$; $CH$, $e$; & $CD$, $o$; rectangulum $a+o$ in $c-a-o$ ſeu $ac-aa-2ao+co-oo$ æquale eſt rectangulo $b$ in $DI$, ideoque $DI$ æquale $\frac{ac-aa}{b}+\frac{c-2a}{b}o-\frac{oo}{b}$. Jam ſcribendus eſſet hujus ſeriei ſecundus terminus $\frac{c-2a}{b}o$ pro $Qo$, tertius

item





item terminus $\frac{oo}{b}$ pro $Roo$. Cum vero plures non ſint termini, debebit quarti coefficiens S evaneſcere, & propterea quantitas $\frac{S}{R\sqrt{1+QQ}}$, cui medii denſitas proportionalis eſt, nihil erit. Nulla igitur medii denſitate movebitur projectile in parabola, uti olim demonſtravit *Galilæus*. Q. E. I.




*Exempl.* 3. Sit linea $AGK$ hyperbola, aſymptoton habens $NX$ plano horizontali $AK$ perpendicularem; & quæratur medii denſitas, quæ faciat ut projectile moveatur in hac linea.

Sit $MX$ aſymptotos altera, ordinatim applicatæ $DG$ productæ occurrens in $V$; & ex natura hyperbolæ, rectangulum $XV$ in $VG$ dabitur. Datur autem ratio $DN$ ad $VX$, & propterea datur etiam rectangulum $DN$ in $VG$. Sit illud $bb$: & completo parallelogrammo $DNXZ$; dicatur $BN$, $a$; $BD$, $o$; $NX$, $c$; & ratio data $VZ$ ad $ZX$ vel $DN$ ponatur eſſe $\frac{m}{n}$. Et erit $DN$ æqualis $a-o$, $VG$ æqualis $\frac{bb}{a-o}$, $VZ$ æqualis $\frac{m}{n}\overline{a-o}$, & $GD$ ſeu $NX-VZ-VG$ æqualis $c-\frac{m}{n}a+\frac{m}{n}o-\frac{bb}{a-o}$. Reſolvatur terminus $\frac{bb}{a-o}$ in ſeriem convergentem $\frac{bb}{a}+\frac{bb}{aa}o+\frac{bb}{a^3}oo+\frac{bb}{a^4}o^3$ &c. & fiet $GD$ æqualis $c-\frac{m}{n}a-\frac{bb}{a}+\frac{m}{n}o-\frac{bb}{aa}o-\frac{bb}{a^3}o^2-\frac{bb}{a^4}o^3$ &c. Hujus ſeriei terminus ſecundus $\frac{m}{n}o-\frac{bb}{aa}o$ uſurpandus eſt pro $Qo$, tertius cum ſigno mutato $\frac{bb}{a^3}o^2$ pro $Ro^2$, & quartus cum ſigno etiam mutato $\frac{bb}{a^4}o^3$



pro